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ABSTRACT

The study reported in this paper investigated the type and level of co-worker involvement reported by employment specialists who placed 264 Illinois supported employees individually, in groups, or in mobile work crews, and also investigated the relation of level of disability to type of placement. The study found that co-workers associate with supported employees during the work day and assume evaluation and training responsibilities. Co-workers appear to associate, evaluate, and train a supported employee more often when the employee has mild mental retardation than when the mental retardation is severe. Supported employees who were employed in mobile work crews were much less involved with co-workers than they were with employees in other placement options. Nondisabled co-workers rarely invited the supported employees to share activities away from the work site, such as worshiping or bowling. (31 references) (JDD)

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Analysis of Co-worker Involvement in Relation to Level of Disability versus Placement Approach Among Supported Employees

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The limited success demonstration by sheltered workshops in providing meaningful employment opportunities to persons with handicaps has led to the development of alternative service-delivery models that "support" employment in integrated settings (Bellamy, Rhodes, Bo[illegible]beau, & Mank, 1986). Supported employment focuses upon "competitive work in an integrated work setting for individuals who, because of their handicaps, need on-going support services to perform that work" (Federal Register, August 14, 1987, p. 30546). Supported employment also provides opportunities for persons with handicaps to interact with nonhandicapped employees. In fact, employment integration may be the distinguishing characteristic of supported employment (Chadsey-Rusch, 1986). However, except for research reported by Chadsey-Rusch and Gonzalez (1988), we know very little about social interactions that occur between employees with and without handicaps. These authors suggested that employees with handicaps interact with co-workers and that the purpose of these interactions is to share information, tease and joke with others, and ask questions.

Because of their consistent presence in the work environment, co-workers have been identified as a potentially powerful resource available to provide support to supported employees (Rusch, 1986; Rusch, Hughes, Johnson, & Minch, 1988; Rusch & Minch, 1988; Shafer, 1986). Only recently, however, has this support been recognized as potentially important to long-term employment. Lagomarcino and Rusch (1988) and Rusch and Minch (1988) overviewed several studies that reported ways in which co-workers served as change agents. For example, Rusch and Menchetti (1981) taught co-workers to deliver a verbal warning to a food service employee with moderate mental retardation who was failing to

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comply to requests made by supervisors, co-workers, and cooks. Co-workers also were taught to report the results of the intervention to follow-up support staff. The warnings positively affected the performance of the supported employee. Based on their analysis of both business management and sociology of work literature, Nisbet and Hagner (1988) observed that considerable social interaction and support among co-workers are characteristic of natural work environments. These researchers concluded that promoting co-worker involvement may be one means of providing consistent, on-going follow-up services in integrated work settings.

Rusch, Hughes, McNair, and Wilson (1989) define co-workers as employees who meet one or more of the following criteria: (a) work in the proximity of the supported employee, (b) perform the same or similar duties as the supported employee, and/or (c) take breaks or eat meals in the same area as the supported employee. Rusch and Minch (1988) identified five types of co-worker support that have been reported by applied researchers who have enlisted the involvement of co-workers. This involvement included: (a) validating instructional strategies (Rusch & Menchetti, 1981; Schutz, Rusch, & Lamson, 1979), (b) collecting subjective evaluations (Crouch, Rusch, & Karlan, 1984; Schutz, Jostes, Rusch, & Lamson, 1979; White & Rusch, 1983), (c) implementing training procedures (Kochany, Simpson, Hill, & Wehman, 1982; Rusch, Weithers, Menchetti, & Schutz, 1980; Stanford & Wehman, 1982), (d) collecting social comparison information (Crouch et al., 1984; Rusch, Morgan, Martin, Riva, & Agran, 1985), and (e) maintaining work performance after skill acquisition (Kochany et al., 1981; Rusch et al., 1985).

The primary purpose of this study was to extend the findings of Rusch et al. (1988) by describing co-worker involvement in relation to level of disability versus placement approach. Specifically, this study sought to describe the type and level of co-worker involvement being reported by employment specialists who place their supported employees individually, in groups (i.e., clustered), or in mobile work crews. Additionally, the relation of level of disability to type of placement was investigated. Rusch et al. (1988)

indicated that the greatest percentage of supported employees had co-workers who served as associates (87%), followed by evaluators (70%), trainers (61%), advocates (42%), friends (20%), and data collectors (17%). However, their findings did not consider whether involvement would vary as a function of level of disability and placement approach.

Methods

Sample Derivation

The sample for this study included 264 supported employees served by community rehabilitation facilities implementing supported employment projects throughout the state of Illinois. Persons were selected for inclusion in the sample on the basis of the following criteria:

1. Persons were selected who were reported to experience mental retardation as a primary disability as reported by agencies on the basis of the most current psychological evaluation and/or other enrollment information collected by each agency. Classification of disability included four levels of mental retardation (i.e., mild, moderate, severe, profound) based on the American Association on Mental Retardation's classification (Grossman, 1983).
2. Complete data were available on co-worker involvement during the months of August 1987 through December 1987 although not necessarily for all five months (see section on Data Collection for description of co-worker data).
3. All persons were served by a supported employment program funded by the Illinois Department of Rehabilitation Services, the Illinois Department of Mental Health and Developmental Disabilities, and/or the Illinois Governor's Planning Council on Developmental Disabilities.

Data were obtained for the month of September, 1987—the month in which complete data were reported for the greatest number of employees. In that month, employment programs served a total of 333 persons. Of that number, important descriptive data were missing on 15 persons, and an additional 54 persons were reported as having primary

disabilities other than mental retardation. The final sample employed for this study, therefore, was 264 persons. Table 1 displays the characteristics of the sample selected for consideration.

Data Collection

Every month beginning July, 1987, all participating rehabilitation agencies received a Co-worker Involvement Reporting Form from the University of Illinois, instructions for completing the form, and a stamped return envelope (form available upon request from first author). Ten days after the suggested return date, a participating agency would receive a telephone call if its forms were not received or were filled out incompletely. Returned forms were entered into a dBase file by trained computer programmers.

Instructions accompanying the Co-worker Involvement Reporting Forms requested that the employment specialist primarily responsible for providing post-placement, long-term follow-up complete the form. All employment specialists participating in the Illinois Supported Employment Project attended a total of three two-day workshops beginning in the spring and summer of 1987, in which they were trained to collect data concerning co-worker involvement using direct observation (and verbal report, when assessing the occurrence of befriending). Additionally, all employment specialists were provided at least two on-site visits beginning in the fall of 1985 which included technical assistance in data collection by technical assistance and program evaluation staff members of the University of Illinois. During the workshops and the scheduled site visits, employment specialists were given information and provided with opportunities to ask questions about the data collection requirements of the three funding agencies.

The Co-worker Involvement Reporting Form was completed monthly for each supported employee and consisted of two sections. The first section assessed employment specialist hours involved in supported employment activities provided to the supported employee. The second section consisted of six items concerning co-worker involvement. These items required the employment specialist to evaluate the occurrence or

Table 1

Characteristics of Supported Employees (N=264)

	Supported Employment Placement			
	Individual	Clustered	Mobile Crew	TOTAL
Mild Mental Retardation				
N	81	62	17	160
% of Sample	30.7	23.5	6.4	60.6
Row percentage	50.6	38.8	10.6	
Column percentage	68.6	50.4	73.9	
Moderate Mental Retardation				
N	31	42	5	78
% of Sample	11.7	15.9	1.9	29.6
Row percentage	39.7	53.9	6.4	
Column percentage	26.3	34.2	21.7	
Severe/Profound Mental Retardation				
N	6	19	1	26
% of Sample	2.3	7.2	.4	9.9
Row percentage	23.1	73.1	3.8	
Column percentage	5.1	15.5	4.4	
TOTAL				
N	118	123	23	264
%	44.7	46.6	8.7	100

Gender	n	%
Female	101	38
Male	163	62

Ethnicity	n	%
Asian	1	0.4
Black	35	13
Hispanic	9	3
White	219	83

Mean Age = 32 (SD=9.9)

Mean IQ = 57.7 (SD=13.2)

nonoccurrence of types of co-worker involvement provided to the supported employee (i.e., training, associating, befriending, advocating, collecting data, evaluating). Table 2 provides definitions used by agencies for reporting type of co-worker involvement and type of supported employment placement.

Analysis

Categorical modeling procedures (Bishop, Fienberg, & Holland, 1975; Grizzle, Starmer, & Koch, 1969; Kritzer, 1979) were employed to test hypotheses that response probabilities within each category of social involvement, and across all categories of social involvement as a whole, were the same for all groups, regardless of level of disability or employment placement type. Such an approach allows the evaluation of "main effects" (i.e., the relationship between level of disability and frequency of social interaction; the relationship between type of placement and frequency of social interaction) and "interaction effects" (i.e., the joint relationship between level of disability, type of placement, and frequency of social interaction). In addition, the categorical modeling approach employed in this study yields an "intercept" value, which indicates an overall estimate of the significance of the tabled distribution. The SAS "CATMOD" procedure was employed in all inferential analyses (SAS Institute, 1985). To make the results of the analyses more intuitively understandable, simple descriptive data and charts were also prepared.

Results

Table 3 provides the number and percentage of persons for whom each type of co-worker involvement has been reported as occurring/not occurring. In addition, Table 3 also provides a breakdown of the percentage of individuals for whom co-worker involvement had occurred by disability, type of placement, and type of co-worker involvement. The results are categorized as associating, befriending, advocating, training, data collection, and evaluation.

Table 2

Types of Co-worker Involvement and Supported Employment Placement

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Co-worker Involvement

Advocating - Co-worker advocates for target employees by optimizing, backing, and supporting the target employee's employment status. Optimizing refers to encouraging a supervisor to assign high-status and relevant tasks to the target employee, backing refers to supporting target employee's rights, for example, by attempting to prevent practical jokes aimed at the target employee. It also includes speaking up for the target employee or offering explanations during differences of opinion. Supporting relates to providing emotional support to the target employee in the form of friendship, association, etc.

Associating - Co-worker interacts socially with the target employee at the work place.

Befriending - The co-worker interacts socially with target employee outside of the workplace.

Collecting Data - Co-worker collects data by observing and recording social and/or work performance.

Evaluating - A co-worker appraises a target employee's work performance and provides (written/oral) feedback to him/her.

Training - The co-worker supports a target employee by providing on-the-job skill training.

Supported Employment Placement

Individual Placement - Placement of an individual into competitive employment, typically without the presence of other workers with disabilities who perform the same job (e.g., dishwasher who works in a restaurant, janitor who works in a state office building).

Clustered Placement - Situation where two or more supported employees work for single employer typically performing similar job duties.

Mobile Crew - Situation where several supported employees work together and perform the same type of job at various community work sites (e.g., a janitorial work crew).

Note. From Co-worker Involvement Scoring Manual and Index by F. R. Rusch, C. Hughes, J. McNair, and P. G. Wilson, 1989, Champaign: University of Illinois. Adapted by permission.

Table 3

Percentage of Supported Employees Experiencing Co-worker Involvement by Type of Co-worker Involvement Disability, and Supported Employment Placement (N=264)

	Mild		Moderate		Severe	
	N	%a	N	%	N	%
Associating						
Individual	68	84	27	87	5	83
Cluster	52	84	36	86	17	89
Mobile Crew	12	71	1	20	-	-
Befriending						
Individual	23	28	11	35	1	17
Cluster	14	23	14	33	1	5
Mobile Crew	-	-	1	20	-	-
Advocating						
Individual	43	53	18	58	1	17
Cluster	23	37	12	29	1	5
Mobile Crew	2	12	1	20	-	-
Training						
Individual	57	70	21	68	4	67
Cluster	25	40	23	55	2	11
Mobile Crew	4	24	1	20	1	100
Data Collecting						
Individual	19	23	4	13	-	-
Cluster	7	11	4	10	-	-
Mobile Crew	1	6	-	-	-	-
Evaluating						
Individual	49	60	19	61	4	67
Cluster	27	44	29	69	10	53
Mobile Crew	7	41	2	40	-	-

[a]Percentage represents the percent of the number of workers experiencing the disability indicated that were also employed in the type of supported employment placement indicated for whom co-worker involvement of the type indicated was reported to have occurred. (For example, of 78 persons in the sample experiencing moderate mental retardation, 31 were employed in individual placements [see Table 1] and of this number, 18 (58%) experienced co-worker involvement in the form of advocating.) N is the number of persons reported to have experienced co-worker involvement.

Table 4 indicates the results of the seven linear model analyses conducted to test the hypothesis of homogeneity of response probabilities. Each analysis reflected in Table 4 represents results from a saturated model that includes all sources of nondependent variation. The first analysis of variance table was a complete saturated model to determine whether or not a significant difference between occurrence and nonoccurrence of co-worker involvement was reflected in the data without regard for type of co-worker involvement (i.e., occurrence was scored for any given supported employee for any type of co-worker involvement). As the results indicate, the intercept reflects a highly significant difference within the data primarily because of the type of supported employment placement. Because the levels of the factor of type of co-worker involvement were dependent, this factor was not included in the complete model. However, Table 4 also provides the results for saturated models developed for each type of co-worker involvement. The only nonsignificant effects indicated were for the disability by placement interaction for befriending and advocating, and the disability main effects for training and evaluation. In short, the extremely high chi-square values for the intercept clearly indicate a highly significant difference between the frequency of occurrence and nonoccurrence of each type of co-worker involvement. In addition, significant differences with respect to disability and type of supported employment placement were clearly indicated for all types of co-worker involvement except training and evaluation. In the case of training and evaluation, only placement and the interaction between disability and placement resulted in statistically significant differences.

Table 3 is most instructive for the interpretation of the results by Table 4. Some general observations are very interesting. First of all, associating with nondisabled co-workers was reported more often than any other type of co-worker involvement. Conversely, 0-35% of supported employees (by level of disability and placement type) appeared to be befriended by nondisabled co-workers or to have had supervisory involvement in the form of data

Table 4

Results of Linear Analysis of the Frequency of Co-worker Involvement

Complete Saturated Model

Source	df	X^2	p
Intercept	1	782.14	.0001
Disability (D)	2	3.38	.1846
Placement (P)	2	21.72	.0001
D x P	4	2.64	.6197
Residual	0	0.00	1.0000

Saturated Models of Social Involvement Categories

		Associating		Befriending		Advocating	
Source	df	X^2	p	X^2	p	X^2	p
Intercept	1	105.78	.0001	718.30	.0001	536.56	.0001
Disability (D)	2	10.69	.0048	6.43	.0401	18.33	.0001
Placement (P)	2	54.11	.0001	6.10	.0473	13.22	.0013
D x P	4	32.06	.0001	6.78	.1479	4.53	.3386
Residual	0	0.00	1.0000	0.00	1.0000	0.00	1.0000

Saturated Models of Supervisory Involvement Categories

		Training		Data Collection		Evaluation	
Source	df	X^2	p	X^2	p	X^2	p
Intercept	1	191.20	.0001	5440.21	.0001	163.70	.0001
Disability (D)	2	3.15	.2070	31.16	.0001	2.36	.3069
Placement (P)	2	16.39	.0003	10.33	.0057	11.56	.0031
D x P	4	84.20	.0001	14.44	.0060	11.92	.0180
Residual	0	0.00	1.0000	0.00	1.0000	0.00	1.0000

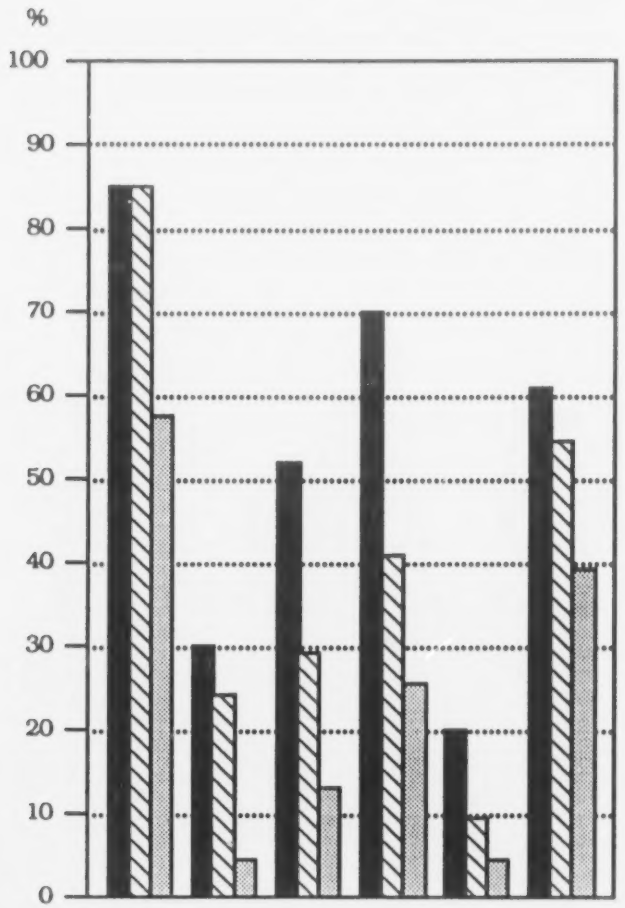
collection. Figure 1 shows the relationship between type of supported employment placement and the percentage of persons for whom co-worker involvement was reported to have occurred. Figure 2 reports the percentage of individuals with each type of primary disability who experienced each type of co-worker involvement. These graphs reflect that, regardless of disability, supported employees working in individual placements represented the largest proportion of individuals experiencing co-worker involvement. Conversely, a low percentage of persons working in mobile crews had experienced co-worker involvement. Although disability was a factor related to the frequency of co-worker involvement, it seems that individuals experiencing the most severe disabilities (n=26) tended to have fewer opportunities for co-worker involvement in the form of befriending, advocating, and data collection than other supported employees.

Type of Co-worker Involvement

Regardless of disability, co-workers were reported to have associated with the majority of supported employees working in individual and clustered supported employment situations. In contrast, the number of persons with mild mental retardation working in mobile crew situations who experienced associating with co-workers decreased by 10%, and only one person with moderate or severe/profound mental retardation working in mobile crews had experienced associating with nondisabled co-workers. However, as Table 1 indicates, there were only six persons with moderate and severe/profound mental retardation employed with mobile crews.

In stark contrast to associating, fewer than half of all persons had experienced befriending by nondisabled co-workers regardless of disability or type of supported employment placement. Also, only one person out of a total of 23 persons working in mobile crews was reported to have been befriended by a co-worker.

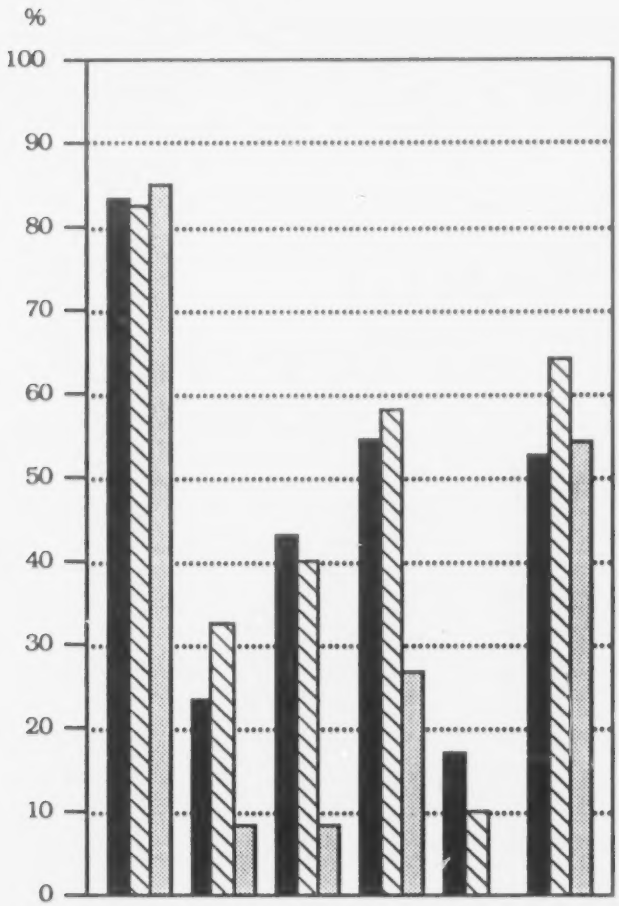
The number of persons who experienced advocating seemed to be affected by both disability and placement. The probability of nondisabled co-workers acting as advocates seemed to decrease as the severity of primary disability increased. In addition, as the type of



	ASC	BEF	ADV	TRN	DC	EVL	n
Individual	85%	30%	52%	70%	20%	61%	118
Clustered	85%	24%	29%	41%	9%	54%	123
Mobile Crew	57%	4%	13%	26%	4%	39%	23

ASC = Associating BEF = Befriending ADV = Advocating
TRN = Training DC = Data Collection EVL = Evaluating

Figure 1. Percentage of Supported Employees Experiencing Co-worker Involvement by Type of Placement



	ASC	BEF	ADV	TRN	DC	EVL	n
Mild	83%	23%	43%	54%	17%	52%	160
Moderate	82%	33%	40%	58%	10%	64%	78
Severe	85%	8%	8%	27%	0%	54%	26

ASC = Associating BEF = Befriending ADV = Advocating
TRN = Training DC = Data Collection EVL = Evaluating

Figure 2. Percentage of Workers Experiencing Co-worker Involvement by Disability

supported employment placement became more group oriented, the probability of co-workers acting as advocates also decreased.

Our results indicate that individuals working in individual placements had more opportunity to receive training from nondisabled co-workers than persons working in either clustered or mobile crew situations. In addition, it is again clear that, in general, persons in mobile crews had a lower probability of experiencing training from co-workers than their peers working in individual or clustered placements.

Data collection by co-workers was reported for only 35 (13%) of the supported employees. For the most part, persons working in individual and clustered placements tended to be evaluated by co-workers more than did individuals working in mobile crews. Again, persons working in individual placements tended to experience more co-worker evaluation than their peers working in other types of employment situations.

Discussion

Recently, supported employment has emerged as a major employment alternative for persons with handicaps. This employment alternative is characterized by the supported employee earning a wage in a nonsheltered work setting, with support being provided to the supported employee. Research conducted in nonsheltered settings suggests that support may be provided by co-workers (cf. Rusch & Minch, 1988), as well as by employment specialists (Renzaglia, 1986).

The results of this investigation support a growing literature that suggests supported employees are involved with nonhandicapped co-workers. Indeed, naturally occurring co-worker support has been found to be typical of work environments in general (Nisbet & Hagner, 1988). Our research suggests that co-workers associate with supported employees during the work day and that these same co-workers assume evaluation and training responsibilities. Additionally, co-workers appear to associate, evaluate, and train the supported employee more often when the employee has mild mental retardation versus severe mental retardation. This finding may be the result of the type of training that is

provided to supported employees. Johnson and Rusch (in press) found that employment specialists depend significantly more time training supported employees with severe handicaps on the job because the type of training needed exceeds the instructional capabilities of most co-workers.

The findings of this study also suggest that type of placement results in significantly different levels of co-worker involvement. We found that supported employees who were employed in mobile work crews were much less involved with co-workers. Supported employees who were individually placed or who worked in clustered placements were more involved with co-workers. These findings are not surprising. Typically, mobile work crews consist of eight or fewer supported employees performing subcontract work. These employees are often transported by a company van to different settings to perform janitorial or maintenance jobs, and these jobs are usually performed when the contracting agency is not open to the public. For example, a mobile work crew may clean a bank after the nonhandicapped co-workers have worked their shifts.

Employment integration has been defined as the participation of employees with and without disabilities as equal members within a workplace (Hughes, Rusch, & Curl, 1990). Because a lack of employment integration is typical of mobile work crews, it may be that the limited opportunity for co-worker support makes these placements inappropriate for supported employment. One defining feature of supported employment is employment integration. Without the opportunity to interact with nondisabled co-workers in the workplace, employees with disabilities are limited in the likelihood of their participating as an equal member of the work force.

In addition, the present study suggests that while nondisabled co-workers are associating with supported employees, they rarely invite these employees to worship, drink, bowl, or share other activities away from the work site. Clearly, the results of this study suggest that if supported employees are not making friends, then efforts must be made to influence potential befriending. What should be emphasized is the need for supported employment

professionals tc develop and implement systematic and natural means of facilitating interactions between nondisabled co-workers and supported employees.

The results of befriending may also have some important implications for job tenure and job separation. Typically, employment offers employees opportunities for developing social relationships and opportunities for engaging in activities that are a function of pursuing social relationships. We suspect that there may be a relationship between the amount of befriending that occurs on a job and job separation. However, these factors were not considered for the present study.

While we tracked the number of supported employees for whom nondisabled co-workers collected data and conducted evaluations, we were not surprised to see that data collection was infrequently reported. It is also probably not in the best interests of promoting social integration of supported employees for nondisabled co-workers to function as trainers, data collectors, or evaluators unless their job description calls for such responsibilities for all designated employees regardless of disability. Menchetti, Rusch, and Lamson (1981) found that certain supervisors objected to data collection procedures that required the use of equipment such as clip boards or stop watches.

There are several limitations of the present study that must be kept in mind. The most important limitation concerns the overall reliability of the data collected. No efforts were made to determine the extent to which employment specialists agreed with one another or themselves over time. Since the completion of this investigation, however, Rusch, Hughes, McNair, and Wilson (1989) have developed a psychometrically valid Co-worker Involvement Index which will be used in future research that explores co-worker involvement. Preliminary studies conducted by McNair (1989), utilizing the Co-worker Involvement Index, suggest very similar co-worker involvement patterns.

Additionally, this study did not consider factors such as the hours each supported employee worked, the number of nondisabled co-workers employed, and the percentage of supported employees' working hours that employment specialists are engaged in training,

observation, and/or supervision. These factors will almost certainly affect the opportunities that nondisabled co-workers have to engage in some type of interaction with supported employees.

In summary, this study extends the findings reported by Rusch et al. (1988) by describing co-worker involvement with supported employees in relation to level of disability versus placement approach. Our findings point to the possibility that nondisabled co-workers do assume significant relationships with supported employees, unless these supported employees are members of mobile work crews. Clearly, our findings indicate that type of supported employment placement is the single most powerful measure of the number of persons for whom co-worker involvement had occurred. Future research must begin to focus more on the frequency, duration, quality, and type of interactions occurring between nondisabled employees and supported employees. Our measures of co-worker involvement are still a fairly coarse attempt at evaluating the quality of interaction that occurs within a work site.

Additionally, research is needed to study the relationships that result from continued employment of supported employees and whether these relationships change as a result of extended employment. This investigation is one in a series of studies the University of Illinois is undertaking to better understand employment outcomes as a result of supported employment. Future research will address whether early patterns of co-worker involvement predict future patterns. We are hopeful that extended supported employment results in significant changes in the quality of employees' lives, including the formation of friendships.

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